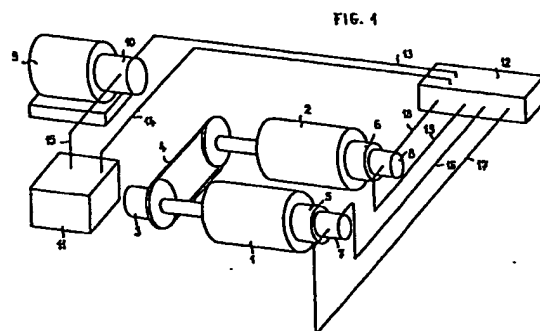


(12) UK Patent Application (19) GB (11) 2 019 342 A

- (21) Application No 7914064  
(22) Date of filing 23 Apr 1979  
(23) Claims filed 23 Apr 1979  
(30) Priority data  
(31) 2817692  
(32) 22 Apr 1978  
(33) Fed.Rep. of Germany (DE)  
(43) Application published  
31 Oct 1979  
(51) INT CL<sup>2</sup>  
B66D 1/08  
(52) Domestic classification  
B8B 45X 48F  
(56) Documents cited  
GB 1542854  
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(58) Field of search  
B8B  
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(54) Drive for a radial scraper mechanism

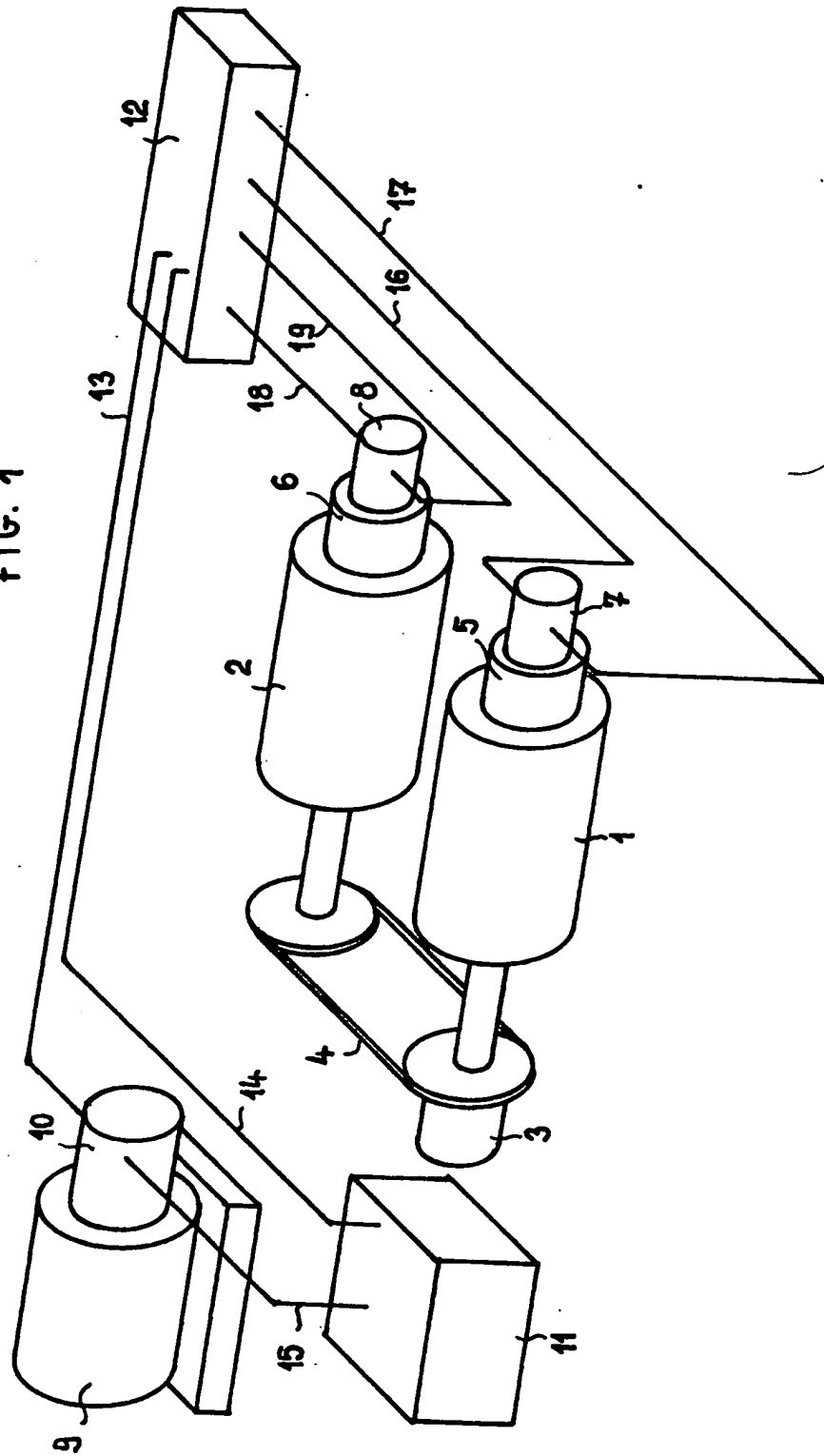
(57) This invention relates to a drive for a radial-scraper mechanism comprising a hauling cable drum 1 connected to a back-haul drum 2, the connection including an inserted coupling 3, a hydraulic system driven by an electric motor 9 and a reservoir 11 for the hydraulic system and a pump 10 driven by the electric motor 9 wherein the pump is a constant head pump. The hauling cable drum 1 and the back-haul drum 2 are each provided with a hydraulic motor 7, 8 and a hydraulic control means 12 is arranged between the latter and the constant head pump 10.



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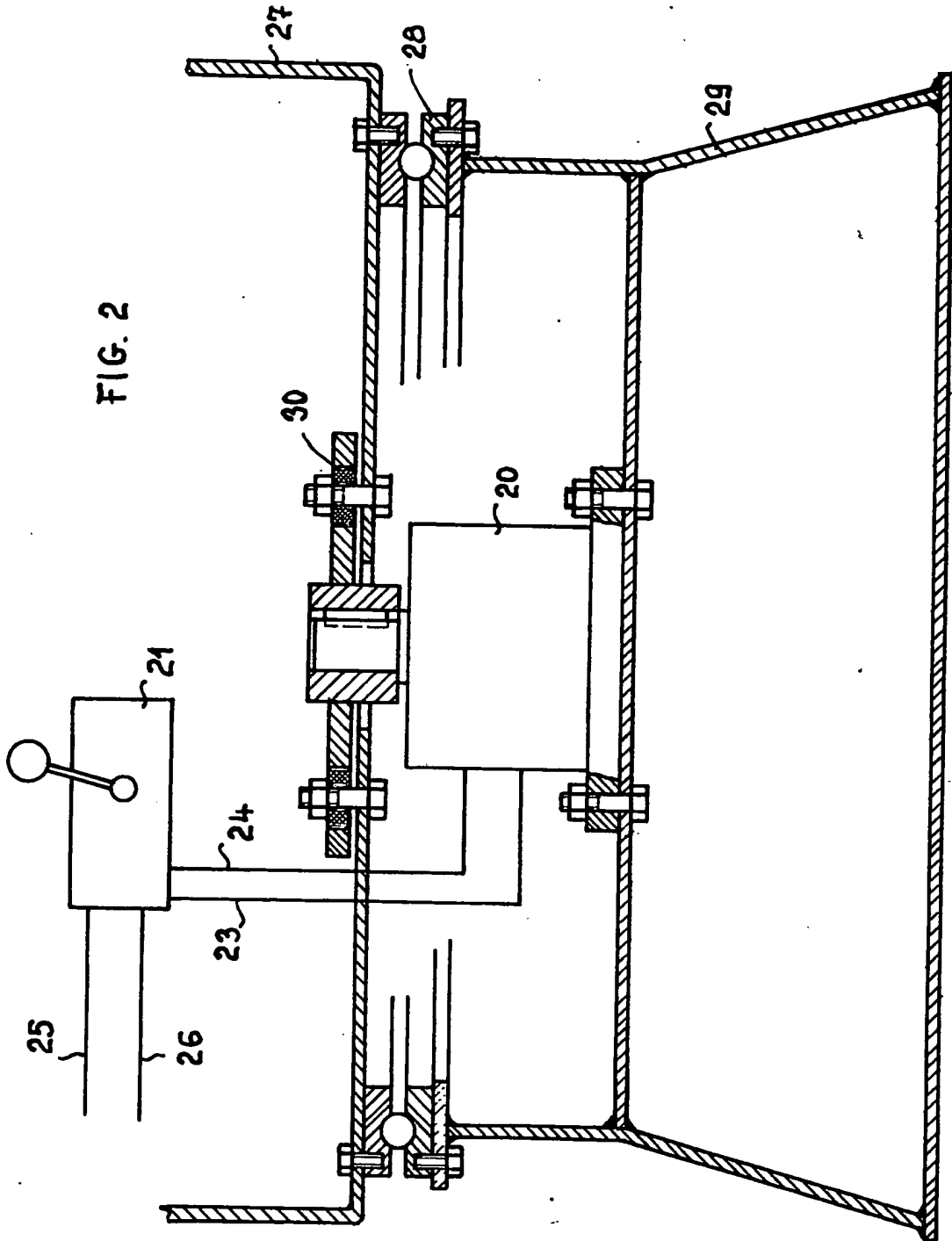
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FIG. 1



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FIG. 2



## SPECIFICATION

## Drive for a radial-scraper mechanism

5 This invention relates to a drive for a radial-scraper mechanism, in particular for the conveyance of waste material

Radial-scraper mechanisms are installed for example in plants for concrete preparation, in particular in  
10 mixing machines. They guide the individual additives, which are stored in sectors about the mixing machine, to the machine. Usually in these radial-scraper mechanisms a scraper shovel is arranged between two cables, a hauling cable and a back-haul  
15 cable, which for their part run on a hauling cable drum and a back-haul drum respectively in the drive for the radial-scraping mechanism, wherein furthermore the back-haul cable runs over a guide pulley arranged in the apex of a jib pivotable above the  
20 sectors.

Known drives of this kind are again provided, inter alia with a drive motor, which drives an adjustable pump of hydraulic system. An oil engine furthermore is arranged in this hydraulic system, which  
25 sets in motion the hauling cable drum. Since the back haul drum must also be driven at the same time with the hauling cable drum, a suitable drive connection, for example via a chain, is provided between the two drums.

In order to harmonise the movement of the hauling cable drum and the back haul drum with one another, especially to be able to brake the back haul drum, a coupling is provided on the one hand between the hauling cable drum and the back haul  
35 drum as well as providing on the other hand the back haul drum with an induction brake, a multi-plate brake or like connection. Finally limit switches are arranged both in cooperation with the hauling cable drum and with the back haul drum, which permit a  
40 corresponding control of the movement work cycle of the two drums.

The brake provided for the back haul drum is a part subject to wear, which first requires in operation continuous inspection and readjustment, which  
45 must frequently be exchanged or replaced, which leads to additional periods of disuse of the plant. The presence of such sensitive part is particularly undesirable when the plants are to be operated in countries with low technical standards. Here the  
50 necessary skilled operators are lacking who can adjust and service the brakes and if necessary replace them.

This invention is accordingly based on the problem of providing a drive for radial-scraper mechanisms, starting from known hydraulic systems, that does not have parts subject to wear which require maintenance and often replacement. In addition the drive should preferably be equipped to be controllable both by hand and by automatic control. It is  
60 desired that the solution of these problems does not lead to increased construction costs in relation to known drives, but rather to a simplified drive and hence a reduction in cost from both the point of view of maintenance as well as manufacture.

65 Accordingly the present invention provides a drive

for a radial-scraper mechanism comprising a hauling cable drum connected to a back haul drum, the connection including an inserted coupling a hydraulic system driven by an electric motor and a  
70 reservoir for the hydraulic system and a pump driven by an electric motor wherein the pump driven by the electric motor is a constant head pump, both hauling cable drum and back haul drum are provided with a hydraulic motor and a hydraulic control  
75 means is arranged between the hydraulic motor and the constant head pump driven from the electric motor.

This hydraulic control means permits both manual and automatic control and permits furthermore the omission of an additional brake for the back-haul drum, both drums being driven and controlled from the hydraulic control means through their own associated hydraulic motor. Since the hydraulic control means is a self-enclosed construction element, having no parts which require continuous  
80 inspection and maintenance, the initially mentioned disadvantages in connection with the known braked for the back-haul drum are omitted. The constant head pump is simpler and accordingly cheaper in its construction than the adjustable pump used in the  
90 known drive. Notwithstanding that two hydraulic motors are provided the drive has become as a whole simpler and thus cheaper.

The hydraulic systems provided for the drive of the hauling cable drum and back-haul drum can furthermore be employed for the drive of a hydraulic pivoting motor for the pivoting movement of the jib of the radial-scraper mechanism.

If a hydraulic pivoting motor is thus used for the pivoting movement of the jib in the hydraulic system, the otherwise customary external gear  
100 toothing of the ball race rim is not wanted. Considerable advantages result therefrom. A necessary exact surface finishing, in the use of such an external gear toothing, of the part for receiving the pivoting drive is no longer necessary, since with the omission of the gear toothing a tooth direction error can no longer arise. Furthermore the necessary precise centering necessary in an external gear toothing as  
110 well as the precise maintaining of a predetermined clearance distance between the middle of the ball race rim and the middle of the pivoting drive is no longer necessary. The integration of the swivelling of the jib in the hydraulic system thus signifies far reaching simplification of the pivoting drive and  
115 accordingly economise in the manufacture and advantages in operation.

One embodiment of the present invention will now be further described, by way of example with reference to the accompanying schematic drawings in which:

Figure 1 shows the drive for the hauling cable drum and the back-haul drum; and

120 Figure 2 shows the plant with inclusion of the hydraulic drive of the jib of the radial-scraper mechanism.

Referring to Figure 1, the drive has a hauling cable drum 1 and a back-haul drum 2. Both drums 1, 2 are connected with one another by a coupling 3, for example via a chain drive 4.

Both the hauling cable drum 1 and the back-haul drum 2 are provided with a hydraulic motor 7 and 8 respectively with inter positioning of a gearing 5 or 6 and respectively. These hydraulic motors can be, for example and are preferably, gear wheel motors.

An electric motor 9 is provided as power source for the drive, which drives a constant pump 10, for example a geared pump. A reservoir 11 for the hydraulic means, preferably oil, is provided in the hydraulic system control block 12 allows for manual as well as an automatic control of the drive.

This hydraulic control block is connected through a conduit 13 with the constant pump 10 and through a return conduit 14 with the oil reservoir 11. The further connection between this oil reservoir 11 and the constant pump 10 is provided by a conduit 15.

Conduits 16 and 17 for the connection of the hydraulic motor 7 of the hauling cable drum 1 with the hydraulic control block 12 and conduits 18 and 19 for the connection of the hydraulic motor 8 of the back-haul drum 2 with the hydraulic control block 12 are further provided.

If the jib of the radial-scraper mechanism is to be integrated in the hydraulic drive then this can be achieved as shown in Figure 2 by fitting the jib with a rotary piston-pivoting drive 20. This is connected with the hydraulic system through a control block 21 and conduits 23, 24 as well as 25, 26.

An upper frame 27 to be moved by the pivoting drive is superimposed, with the interpositioning of a ball bearing slowing gear 28, on an underframe 29.

In the proposed embodiment no reduction gear, no gear toothing of the ball bearing slowing gear and no bevel gear is necessary. A locking brake can be incorporated in the rotary piston-pivoting drive.

If, further, flexible transmission elements 30 are also provided between the rotary piston-pivoting drive 20 and upper frame 27 then accordingly assembly flaws can be widely compensated.

#### CLAIMS

1. A drive for a radial-scraper mechanism comprising a hauling cable drum connected to a back-haul drum, the connection including an inserted coupling, a hydraulic system driven by an electric motor and a reservoir for the hydraulic system and a pump driven by an electric motor wherein the pump driven by the electric motor is a constant head pump, the hauling cable drum and the back-haul drum are each provided with a hydraulic motor and a hydraulic control means is arranged between the latter and the constant head pump.

2. A drive as claimed in Claim 1, in which the pumps and the motors are geared pumps or gear wheel motors respectively.

3. A drive as claimed in claim 1 or 2 in which a pivoting drive for a jib of the radial-scraper mechanism is connected to the hydraulic system.

4. A drive for a radial-scraper mechanism substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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